WHAT IS CLAIMED IS:

1. A power semiconductor module, comprising:

at least one thermally conducting supporting member;

at least one power semiconductor component;

at least one insulating substrate having a first surface between said power semiconductor component and said substrate;

a metallic layer on said first surface; and

at least a first thermal conduction layer comprising at least a plurality of carbon based tubules between said metallic layer on said first surface and said power semiconductor component, whereby a thermal conductivity is improved.

2. A power semiconductor module, according to claim 2, wherein:

said supporting member includes at least one of a base plate, a heat sink, a cooling member, and a means for transferring thermal energy away from said substrate and said at least one power semiconductor component.

3. A power semiconductor module, according to claim 1, further comprising:

a packaging in said power semiconductor module; and

said packaging at least partially bounding said power semiconductor module, whereby said packaging aids an assembly and a use of said power semiconductor module.

4. A power semiconductor module, according to claim 1, wherein:

said carbon based tubules are arranged substantially orthogonal to the plane of said substrate.

5. A power semiconductor module, according to claim 1, further comprising:

at least a second surface on said insulating substrate between said substrate and said thermally conducting support member; and

at least a second thermal conduction layer comprising a plurality of carbon based tubules between said second surface and said support member, whereby a thermal conductivity is improved.

6. A power semiconductor module, according to claim 1, wherein:

said plurality of tubules in said first layer extends substantially orthogonal to said substrate.

7. A power semiconductor module, according to claim 5, wherein:

said plurality of tubules in said first and said second layers extends substantially orthogonal to said substrate.

8. A power semiconductor module, according to claim 1, further comprising:

at least a second surface on said substrate, opposite said first surface;

a second metallic layer on said second surface;

at least a second thermal conduction layer comprising a plurality of carbon based tubules between said second metallic layer and said supporting member.

9. A power semiconductor module, according to claim 1, wherein:

said carbon based tubules include at least a plurality of carbon-nano tubules.

10. A power semiconductor module, according to claim 1, wherein:

said at least one power semiconductor component and said first thermal conduction layer are positively bonded to said substrate by means of a pressure contact.

11. A power semiconductor module, according to claim 5, wherein:

said second conduction layer is a pasty mixture comprising at least said plurality of carbon based tubular members and a bonding agent, whereby said pasty mixture forms a conductive past.

12. A power semiconductor module, according to claim 1, wherein:

said power semiconductor module is arranged on said conducting supporting member by a means for applying a pressure contact.

13. A power semiconductor module, according to claim 1, further comprising:

a second thermal conductive layer between said substrate and said supporting member; and

said second layer being a pasty mixture comprising at least a plurality of carbon based tubules and a bonding agent.

14. A power semiconductor module, according to claim 11, wherein:

a thermal conductivity of said pasty mixture is about two orders of magnitude less thermally conductive than a conventional pasty mixture.

15. A power semiconductor module, comprising:

at least one means for thermally conducting and supporting said power semiconductor module;

at least one power semiconductor component;

at least one insulating substrate having a first surface between said power semiconductor component and said substrate;

a metallic layer on said first surface;

at least a first thermally conduction layer including at least a plurality of carbon based tubules between said metallic layer on said first surface and said power semiconductor component; and

at least a second thermally conduction layer including at least a plurality of carbon based tubules between said insulating substrate and said means for thermally conducting and supporting, whereby a thermal conductivity from said power semiconductor component to said means for thermally conducting and supporting is greatly improved.

16. A power semiconductor module, according to claim 16, further comprising:

at least a first metallic layer on a first side of said substrate, between said fist thermally conductive layer and said substrate; and

at least a second metallic layer on a second side of said substrate, between said second thermally conductive layer and said substrate, whereby a thermal conductivity of said module is increased.

17. A method for manufacturing a power semiconductor module, comprising the steps of:

forming a first metallic layer on a top surface of a substrate;

forming a first thermally conductive layer between one of a bottom surface of a power semiconductor component and said first metallic layer;

said first thermally conductive layer including a plurality of carbon based tubules;

positively bonding said power semiconductor component and said first thermally conductive layer on said first metallic layer of said substrate;

forming a second thermally conductive layer between one of a bottom surface of said substrate and a top surface of a thermally conducting support member;

positively bonding said second substrate and said second thermally conductive layer to said support member, whereby a power semiconductor module is formed having a very easy thermal conductivity from said power semiconductor component to said support member.

18. A power semiconductor module, comprising:

at least one power semiconductor component;

at least one substrate;

at least one metallic layer on at least a first surface of said substrate;

at least one thermally conducting support member;

at least one thermally conducting layer between at least one of said power semiconductor component and said substrate, and said substrate and said support member; and

said at least one thermally conducting layer including a plurality of carbon based tubular components, whereby a thermal conductivity of said power semiconductor module is increased.

19. A power semiconductor module, with a base plate or for direct installation on a heat sink, comprising:

a packaging surrounding at least a portion of said module;

at least one power semiconductor component;

at least one insulating substrate on whose first surface a metallic layer is provided, whereby the at least one power semiconductor component is connected with said metallic layer by means of a layer containing carbon nano tubules running substantially orthogonal to the substrate planes, whereby said substrate is additionally connected with one of said base plate and said heat sink by means of a layer of carbon nano tubules.

20. A power semiconductor module, according to Claim 19, wherein:

in that an additional metallic layer is provided on the second main surface between the substrate and the layer of carbon nano tubules.

21. A power semiconductor module according to Claim 19, wherein:

the at least one power semiconductor component including its carbon nano tubules is positively bonded to the substrate by means of a pressure contact.

22. A power semiconductor module according to Claim 19, wherein:

the power semiconductor module is arranged on the base plate or the heat sink by means of pressure contact.

23. A power semiconductor module according to Claim 19, wherein:

the carbon nano tubules are arranged directly on the power semiconductor component.

24. A power semiconductor module according to Claim 19, wherein:

the carbon nano tubules are arranged on at least one metallic layer of the substrate.

25. A power semiconductor module, according to claim 19, wherein:

the carbon nano tubules are arranged substantially orthogonal to a substrate plane.

26. A power semiconductor module, according to claim 19, wherein:

the carbon nano tubules are arranged between the substrate and the base plate or the heat sink in a pasty mixture of carbon nano tubules and a bonding agent, selected from a group including a silicon oil.